MID-ATLANTIC FISHERY MANAGEMENT COUNCIL

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MEMORANDUM

Date: June 30, 2010

To: Science and Statistical Committee (SSC) and Scup Monitoring Committee (SMC)

From: Jessica Coakley

Subject: Scup Management Measures 2011

The re-authorized Magnuson-Stevens Fishery Conservation and Management Act (MSRA) requires each Council establish an SSC to assist it by providing it with among other things, ongoing scientific advice for fishery management decisions, including recommendations for acceptable biological catch (ABC), preventing overfishing, and maximum sustainable yield. Each Council must then develop annual catch limits (ACLs) that do not exceed the fishing level recommendations of its SSC or its peer review process. Amendment 8 to the Scup Fishery Management Plan (FMP) requires that the Scup Monitoring Committee meet annually to review the best available biological and fisheries data and make recommendations regarding management measures. The Council, through the Omnibus ACL/Accountability Measure (AM) Amendment intends to include recommending catch levels that address management uncertainty as one of the Committee roles.

The ABCs, total allowable catch (TAC), total allowable landings (TALs), commercial quotas, recreational harvest limits, commercial size limits, mesh regulations, and landings are presented in Table 1 for each year of the management program.

Landings

In 2009, recreational landings were 2.94 million lb (1,333 mt) and commercial landings were 8.20 million lb (3,719 mt); combined commercial and recreational landings were about 11.14 million lb (5,053 mt; Table 2).

Table 1. Summary of Federal scup management measures implemented, 1996-2010.

Management measures	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>1999</u>	2000	2001	2002	2003	2004	<u>2005</u>	2006	2007	2008	2009	2010
ABC (m lb)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	11.70 ^a	17.09
TAC (m lb)	-	9.10	7.28	5.92	5.92	8.37	12.92	18.65	18.65	18.65	19.79	13.97	9.90	15.54 ^a	17.09
Com. TAC (m lb)	-	7.10	5.68	4.62	4.62	6.53	10.08	14.55	14.55	14.55	15.44	10.90	7.72	12.12	13.33
Com. Quota initial (m lb)	-	6.00	4.57	2.53	2.53	4.44	8.00	12.47	12.47	12.47	12.08	9.18	5.46	8.54	11.01
Com. Quota adjusted (m lbs)	-	-	-	-	1.75	3.53	7.25	12.10	12.34	12.23	11.93	8.90	5.24	8.37	10.68
Com. Landings(m lb)	6.43	4.82	4.18	3.32	2.66	4.07	7.28	9.89	9.32	9.38	8.96	9.25	5.18	8.20	-
Rec. TAC (m lb)	-	2.0	1.60	1.30	1.30	1.84	2.84	4.10	4.10	4.10	4.35	3.07	2.18	3.42	3.76
Rec. harvest limit initial (m lb)	-	1.95	1.55	1.24	1.24	1.77	2.77	4.03	4.03	4.02	4.19	2.82	1.88	2.64	3.10
Rec. harvest limit adjusted (m lb)	-	-	-	-	ı	-	2.71	4.01	4.01	3.96	4.15	2.74	1.83	2.59	3.01
Rec. landings (m lb)	2.16	1.20	0.88	1.89	5.44	4.26	3.62	8.48	4.24	2.54	2.95	3.65	4.04	2.94	-
Com. fish size (in)	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
Min. mesh size (in, diamond)	4.0	4.5	4.5	4.5	4.5	4.5	4.5/5.0	4.5/5.0	4.5/5.0	5.0	5.0	5.0	5.0	5.0	5.0
Mesh threshold	4000/ 1000	4000/ 1000	4000/ 1000	200/ 100	200/ 100	500/ 100	500/ 100	500/ 100	500/ 100	500/ 200	500/ 200	500/ 200	500/ 200	500/ 200	500/ 200

^a In 2009, the SSC recommend an ABC of 11.70 million lb. Based on the Data Poor Stocks Workgroup Panel Report, which was not available to the SSC at the time the recommendation was made, NMFS increased the TAC to 15.54 million lb.

Table 2. Scup commercial and recreational landings ('000 lbs), 1981-2009.

Year	Comm ^a	Rec ^b	Total	% Comm	% Rec
1981	21,729	5,812	27,541	79%	21%
1982	19,188	5,205	24,393	79%	21%
1983	17,184	6,252	23,436	73%	27%
1984	17,129	2,416	19,545	88%	12%
1985	14,829	6,093	20,922	71%	29%
1986	15,816	11,605	27,421	58%	42%
1987	13,854	6,197	20,051	69%	31%
1988	13,105	4,267	17,372	75%	25%
1989	8,769	5,557	14,326	61%	39%
1990	10,084	4,140	14,224	71%	29%
1991	15,610	8,087	23,697	66%	34%
1992	13,798	4,412	18,210	76%	24%
1993	10,416	3,197	13,613	77%	23%
1994	9,376	2,628	12,004	78%	22%
1995	6,751	1,344	8,095	83%	17%
1996	6,433	2,156	8,589	75%	25%
1997	4,823	1,198	6,021	80%	20%
1998	4,180	875	5,055	83%	17%
1999	3,318	1,886	5,204	64%	36%
2000	2,660	5,443	8,103	33%	67%
2001	4,067	4,262	8,329	49%	51%
2002	7,282	3,624	10,906	67%	33%
2003	9,893	8,484	18,377	54%	46%
2004	9,319	4,239	13,558	69%	31%
2005	9,379	2,542	11,921	79%	21%
2006	8,961	2,954	11,915	75%	25%
2007	9,247	3,648	12,895	72%	28%
2008	5,184	4,044	9,228	56%	44%
2009	8,204	2,940	11,144	74%	26%
Mean	10,365	4,328	14,693	70%	30%

Commercial landings based on Dealer Weighout Data, as of May 27, 2010.

Recreational landings based on pers. comm. with the National Marine Fisheries Service, Fisheries Statistics Division, June 11, 2010.

Regulatory review

Currently, the allocation of the annual commercial quota and recreational harvest limit is governed by the regulatory amendment approved by the Council and Commission in 1997. That amendment established a system that allocated an annual TAC to the commercial and recreational fisheries based on catch data for 1988 to 1992 (78% commercial; 22% recreational). Furthermore, it established a commercial quota system for scup that allocated the commercial TAC into three periods based on landings data for 1983-1992 (i.e. landings were used as a proxy for catch). These are Winter I (January-April; 45.11%), Summer (May-October; 38.95%), and Winter II (November-December; 15.94%).

Stock Assessment

The most recent benchmark assessment on scup was peer-reviewed and accepted in December 2008 by the Data Poor Stock Working Group (DPSWG) Peer Review Panel. Documentation associated with this assessment and previous stock assessments, such as reports on stock status, including annual assessment and reference point update reports, Stock Assessment Workshop (SAW) reports, and Stock Assessment Review Committee (SARC) panelist reports, are available online at the NEFSC website: http://www.nefsc.noaa.gov/saw/.

Biological Reference Points

The 2008 DPSWG Peer Review Panel biological reference points for scup include a fishing mortality threshold of $F_{MSY} = F_{40\%}$ (as F_{MSY} proxy) = 0.177 and $SSB_{MSY} = SSB_{40\%}$ (as SSB_{MSY} proxy) = 202.9 million lb (92,044 mt). The minimum stock size threshold, one-half SSB_{MSY} , is estimated to be 101.5 million lb (46,022 mt).

Stock Status

Relative to the DPSWG biological reference points, the stock is not overfished and overfishing is not occurring. Fishing mortality varied between F = 0.1 and F = 0.3 during the 1960s and 1970s. Fishing mortality increased steadily during the 1980s and early 1990s, peaking at about F = 1.1 in the mid-1990s. Fishing mortality decreased after 1994, falling to less than F = 0.1 since 2004, with F in 2009 = 0.043 (Figure 1). There is a 50% chance that F in 2009 was between 0.033 and 0.058. Spawning stock biomass (SSB) decreased from about 220 million lb (100,000 mt) in 1963 to about 110 million lb (50,000 mt) in 1969, then increased to about 165 million lb (75,000 mt) during the mid 1970s. SSB declined through the 1980s and early 1990s to less than 11 million lb (5,000 mt) in the mid-1990s. With greatly improved recruitment and low fishing mortality rates since 1998, SSB has increased to about 346 million lb (157,000 mt) in 2008 and 342 million lb (155,000 mt) in 2009 (Figure 2). There is a 50% chance that SSB in 2009 was between 331 million lb (150,000 mt) and 357 million lb (162,000 mt). Recruitment at age 0 averaged 92 million fish during 1963-1983, the period in which recruitment estimates are influenced mainly by the assessment model stock-recruitment relationship. Since 1984, recruitment estimates from the model are influenced mainly by the fishery and survey catches at age, and recruitment at age 0 averaged 104 million fish during 1984-2009. The 1999 and 2000 year classes are estimated to be the largest of the time series, at 207 and 184 million age 0 fish. Recruitment has exceeded the 1984-2009 average of 104 million in 2001 and 2004-2009.

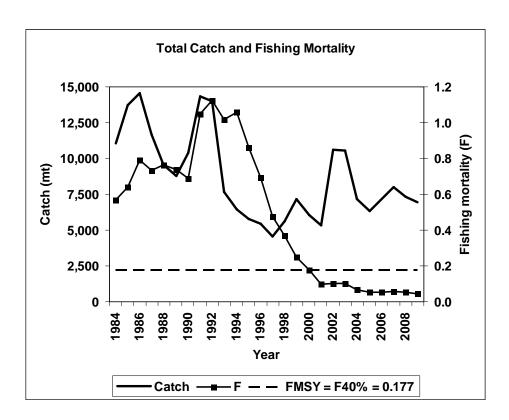


Figure 1. Total catch (landings and discards, metric tons) and fishing mortality rate (F, ages 2-7+) for scup.

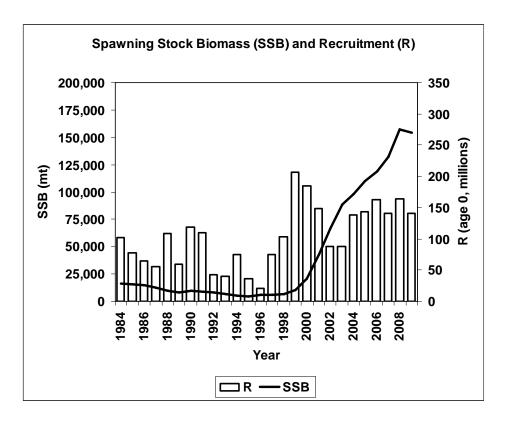


Figure 2. Spawning stock biomass (SSB, metric tons) and recruitment (age 0; millions) for scup.

Rebuilding Timeline

The stock met the rebuilding requirements and is no longer subject to a rebuilding program.

Basis for 2011 ABC Recommendation

Framework 5 to the Summer Flounder, Scup and Black Sea Bass FMP was approved in 2004. That framework allows for the establishment of multi-year TALs (i.e., TALs could be specified for up to 3 years). Although multi-year TALs can be specified through this FMP, the mechanism for setting ABCs, ACLs, and annual catch targets (ACTs) defined under the Omnibus ACL/AM Amendment will not be formally established in the FMP until 2011 (to be applied for 2012 specifications). Therefore it would not be appropriate to set multi-year specifications until after such action. Therefore, I recommend that the TAL be specified for one year, 2011.

The SSC is responsible for recommending an ABC which accounts for the level of scientific uncertainty inherent in the determination of the overfishing limit (OFL), as well as other relevant sources of scientific uncertainty. The SSC and Council are considering a four level ABC control rule framework through the Omnibus ACL/AM Amendment. The tools to quantify the multiple sources of scientific uncertainty for this stock and translate those to offsets in catch and landings have not yet been fully developed. The June 2010 assessment update produced by the Southern Demersal Working Group (SDWG) did not provide a distribution of the OFL, only a point estimate of OFL is available. An OFL distribution would not be available until the next benchmark stock assessment when the SDWG can develop the appropriate methodology, if supportable by the data, and those methods are peer-reviewed through the SAW/SARC process.

In June 2010, the SDWG updated the assessment for scup and produced three sets of projections applying the same models and methods previously reviewed; these were at the threshold fishing mortality rate (F=0.177), 75% of F-threshold which equals F=0.133, and a TAL of 16.3 million lb (7,397 mt) which is based 20.8% increase above the 2010 TAL (the same percentage increase as from 2009 to 2010). The TAL was increased (as opposed to the TAC) to enable projection of discards at age by the model AGEPRO. The forecasts conducted incorporate uncertainty in 2011 stock sizes due to survey variability and recruitment variability (drawn from distribution of past recruitments), assume the 2010 TAL is harvested (but not exceeded), and assume current discard to landings proportions.

The OFL of 67.53 million lb (30,631 mt) is defined by the 50th percentile of catches at the fishing mortality threshold of F=0.177. It is clear that recommendations for ABC which would equal the OFL would not account for any scientific uncertainty associated with estimation of OFL and assessing the scup stock. Based on projections conducted by the Southern Demersal Working Group (SDWG), the projected catch level associated with a 25%, 50%, and 75% probability of achieving F=0.255 and TAL=16.3 million lb in 2011 are presented in Table 3.

Table 3. Projected catch/landings (in million lb) and the probabilities of achieving F=0.133 in 2010 and TAL=16.3 million lb.

Probability of achieving F at that specific Catch/landings	2011 Catch/landings based on F=0.133	2011 Catch/landings based on TAL=16.31 mil lb		
25%	49.5/41.2	19.5/16.3		
50%	51.7/42.9	19.7/16.3		
75%	53.8/44.5	19.8/16.3		

Last year, an ABC for 2010 of 17.09 million lb was recommended by the SSC. These catch levels were based on a 10% increase in TAC from the prior year (2009). This was consistent with the statements from the 2008 DPSWG Peer Review Panel which recommended that "...rapid increases in quota to meet the revised MSY would be unwarranted given uncertainties in recruitments. A more gradual increase in quotas is a preferred approach reflective of the uncertainty in the model estimates and stock status." There is no consistent internal (within the 2010 assessment model) retrospective pattern in F, SSB, or recruitment evident in the scup assessment model. However, between-assessment comparison provides another measure of assessment uncertainty due to "historical" changes in model estimates. The between assessment comparison has resulted in substantial changes to estimates of SSB and recruitment with each assessment update.

Therefore, I recommend an ABC of 19.66 million lb, which is based 20.8% increase above the 2010 TAL (the same percentage increase as from 2009 to 2010).

Basis for TAC/TAL Recommendation

The Scup Monitoring Committee should consider how to address management uncertainty when developing their recommendation to the Council for a TAC/TAL, as the SSC does not consider management uncertainty as part of the recommendation for the ABC. <u>I recommend the Monitoring Committee considers overall fishery performance for 2011 when developing their recommendation, as the FMP does not presently allow for recreational and commercial management uncertainty to be considered independently.</u>

Possession Limits

In 2005, the Council and Commission recommended possession limit changes during the Winter II periods only. They recommended a possession limit of 2,000 lb (in the Winter II fishery). In addition, if transfer of quota occurs between Winter I and Winter II, then the Winter II possession limit should increase at 1,500 lb intervals for every 500,000 lb of scup transferred, i.e., if a million lb is transferred then the limit would be increased by 3,000 lb to result in a 5,000 lb possession limit. The Winter I landings limit will remain unchanged, i.e., 30,000 lb possession limit (state landings limit for a 2 week period) until 80% of the landings are reached and then the possession limit would drop to 1,000 lb. A review of 2009 and 2010 dealer data indicates that the possession limits should not be changed for 2011

(Table 4).

The possession limits were chosen as an appropriate balance between the economic concerns of the industry (i.e., landing enough scup to make the trip economically viable) and the need to ensure the equitable distribution of the quota over the period. Landings and quotas by period are given in Table 5. The average price per pound by fishing period is given in Table 6. A price-volume relationship for scup was described in Amendment 14 to the FMP. The increase in commercial supply in 2009 in response to less restrictive quotas may have driven the 2009 decrease in price. As such, managers should consider the potential impacts of changes in volume on price in the commercial fishery.

Table 4. The total number of vessels, trips, and associated pounds for a given threshold (pounds) of scup, based on 2009 and 2010 dealer data.

Time							
<u>Period</u>	Threshold	Vessels	<u>%</u>	Trips	<u>%</u>	Pounds	<u>%</u>
	>=1	192	100%	3,294	100%	3,774,583	100%
2009	>=500	123	64%	1,218	37%	3,502,077	93%
Winter	>=5000	61	32%	194	6%	1,809,959	48%
I	>=10000	30	16%	65	2%	898,279	24%
(Jan-Apr)	>=15000	11	6%	15	0%	296,060	8%
	>=20000	5	3%	5	0%	116,795	3%
	>=25000	c*	c	c	c	c	c
	>=30000	0	0%	0	0%	0	0%
Time							
<u>Period</u>	Threshold	Vessels	<u>%</u>	Trips	<u>%</u>	Pounds	<u>%</u>
	>=1	164	100%	3,219	100%	1,356,961	100%
2009	>=500	96	59%	998	31%	1,075,018	79%
Winter	>=5000	c	c	c	c	c	c
II	>=10000	0	0%	0	0%	0	0%
(Nov-Dec)	>=15000	0	0%	0	0%	0	0%
	>=20000	0	0%	0	0%	0	0%
	>=25000	0	0%	0	0%	0	0%
	>=30000	0	0%	0	0%	0	0%
Time							
<u>Period</u>	Threshold	Vessels	<u>%</u>	<u>Trips</u>	<u>%</u>	Pounds	<u>%</u>
	>=1	205	100%	3,671	100%	4,735,785	100%
2010	>=1	123	60%	1,531	42%		95%
Winter			32%	244	7%	4,480,360	95% 44%
<u>vvinter</u> I	>=5000 >=10000	65 35	32% 17%	64	2%	2,104,643 857,147	18%
	>=10000	16		16	0%		
(Jan-Apr)	>=13000		8%			282,473	6%
	>=20000	С	c c	С	c	c	c
	>=30000	0	0%	0	0%	0	0%
	>=30000	0	υ%	U	U%	0	υ%

c*= confidential Source: Dealer Weighout Data, as of May 27, 2010.

Table 5. Scup quotas and landings, 2004-2010.

Year	Period	Commercial Quota a	Trip Limits	Landings (lbs)	Date Closed	% of Quota Landed
	Winter I	5,568,920	30,000/1,000 b	3,648,001		65.5
2004	Summer	4,808,455		4,062,145		84.5
	Winter II	1,967,825	1,500	1,618,146		82.2
	Winter I	5,518,367	30,000/1,000 b	3,684,679		66.8
2005	Summer	4,764,806		4,265,667		89.5
	Winter II	1,949,962	1,500	1,454,988		74.6
	Winter I	3,554,991	30,000/1,000 b	3,626,237		102.0
2006	Summer	4,647,569		3,219,929		69.3
	Winter II	3,729,581	2,000/1,000 b	2,115,323		56.7
	Winter I	4,012,895	30,000/1,000 b	3,400,934		84.8
2007	Summer	3,464,914		4,254,987	9/21	122.8
	Winter II	1,417,991	2,000/1,000 b	1,590,747		112.2
	Winter I	2,291,699	30,000/1,000 b	2,356,716		102.8
2008	Summer	1,437,558		1,935,074	6/16	134.6
	Winter II	940,948	2,000/1,000 b	892,318		94.8
	Winter I	3,777,443	30,000/1,000 b	3,774,583		99.9
2009	Summer	2,930,733		3,072,340		104.8
	Winter II	1,334,791	2,000/1,000 b	1,356,961		101.7
	Winter I	4,964,716	30,000/1,000 b	4,735,785		95.4
2010	Summer	4,286,759		1,275,120 °		
	Winter II	1,754,325	2,000/1,000 b			

^a Commercial quotas published on various dates in the Federal Register. ^b Trip limit drops once 80% of the quota is reached. ^c NMFS Weekly Quota Report for week ending June 19, 2010. Source: Dealer Weighout Data, as of May 27, 2010.

Table 6. Commercial scup landings and ex-vessel value by year and period.

<u>Year</u>	<u>Period</u>	<u>Landings</u> (lbs)	<u>Nominal</u> Value (\$)	Nominal Price Mean (\$/lb)
2003	Winter I	3,737,530	1,874,185	0.50
	Summer	4,456,763	3,231,776	0.73
	Winter II	1,698,323	818,012	0.48
	Total	9,892,616	5,923,973	0.60
2004	Winter I	3,648,001	1,951,029	0.53
	Summer	4,062,145	2,993,811	0.74
	Winter II	1,618,146	984,257	0.61
	Total	9,328,292	5,929,097	0.64
2005	Winter I	3,684,679	2,120,435	0.58
	Summer	4,265,667	3,778,161	0.89
	Winter II	1,454,988	1,077,917	0.74
	Total	9,405,334	6,976,513	0.74
2006	Winter I	3,626,237	2,865,278	0.79
	Summer	3,219,929	3,772,519	1.17
	Winter II	2,115,323	1,250,199	0.59
	Total	8,961,489	7,887,996	0.88
2007	Winter I	3,400,934	3,096,496	0.91
	Summer	4,254,987	2,427,949	0.57
	Winter II	1,590,747	1,164,801	0.73
	Total	9,246,668	6,689,246	0.72
2008	Winter I	2,356,716	2,255,812	0.96
	Summer	1,935,074	2,795,526	1.44
	Winter II	892,318	734,129	0.82
	Total	5,184,108	5,785,467	1.12
2009	Winter I	3,774,583	2,504,951	0.66
	Summer	3,072,340	2,869,310	0.93
	Winter II	1,356,961	884,833	0.65
	Total	8,203,884	6,259,094	0.76

Source: Dealer Weighout Data, as of May 27, 2010.

Minimum Fish and Mesh Size - Commercial Fishery

Amendment 8 to the Summer Flounder, Scup, and Black Sea Bass FMP contains provisions that allow for changes in the minimum fish size and minimum net mesh. Current commercial regulations for scup require a 9 inch-TL minimum fish size in the commercial fishery and the following gear requirements for otter trawls: minimum mesh size of 5 inch for the first 75 meshes from the terminus of the net and for codends constructed with fewer than 75 meshes, a minimum mesh size of 5 inch throughout the net. The threshold level used to trigger the minimum mesh requirements is 500 lbs of scup from November 1 through April 30 and 200 lb or more of scup from May 1 through October 31. In 2005, the Scup Monitoring Committee reviewed information on discards and did not recommend changes to the regulations. The 2009 estimate in discards is lower than 2008, but remains substantially lower than the large discard event in 2002 which occurred prior to the implementation of the current regulations. Therefore, I do not recommend a change in the gear requirements for otter trawls.

Industry members have argued that the minimum fish size should be reduced to 8 inch-TL. I am concerned that a drop in the minimum fish size would reduce yields and spawning potential if fishermen target smaller fish. In 2005, I provided a supplemental memo that reviewed the available information on scup maturity, mesh selectivity, and discards. This information was reviewed and the monitoring committee did not recommend any changes based on this information. As such, I recommend no changes to the minimum fish size and net mesh requirements.

Regulated Mesh Areas and Gear Modifications

Gear restricted areas (GRA) were implemented by NMFS in 2000 to reduce discards of scup in small mesh fisheries. GRAs became effective on November 1, 2000 for the northern area with an exemption for herring fishery. The GRAs were modified in size in late December, 2000 to include areas farther south that were identified as areas of potential scup and *Loligo* interactions. Mackerel and herring small mesh fisheries were exempt from the regulations. Based on recommendations from the Monitoring Committee, the boundary of the southern GRA was moved 3 longitudinal minutes to the west in 2005. No modifications were made to the GRAs in 2006 through 2010. I recommend no changes in the GRAs for 2011.

Escape vents

Current regulations require a circular escape vent of 3.1 inch, a square escape vent of 2.25 inch, or a rectangular escape vent of an equivalent size. Recent studies on escape vents in scup pots suggest that the current vent sizes may be too small. A Council and Commission sponsored workshop which reviewed several vent size studies did not make any recommendations for changes in vent size as they relate to scup. Therefore, I recommend no changes to escape vent size requirements in scup pots for 2011.

Research Set-Aside

<u>I recommend up to 3% of the TAL be made available for the Research Set Aside Program.</u> These collaborative efforts among the public, research institutions, and government are beneficial in broadening the scientific base upon which management decisions are made.

Recreational Management Measures

Specific management measures that will be used to achieve the harvest limit for the recreational fishery in 2011 will not be determined until after the first four waves of 2010 recreational landings are reviewed. These data will be available in early October, 2011. The Monitoring Committee will meet in November, 2010 to review these landings data and make recommendations regarding changes in the recreational possession limit, minimum size, or season.

Summary of Staff Recommendation for 2011

In summary, I recommend:

- 1) The ABC be specified for one year, 2011.
- 2) An ABC of 19.66 million lb, which is based 20.8% increase above the 2010 TAL (the same percentage increase as from 2009 to 2010).
- 3) The Monitoring Committee considers overall fishery performance for 2011 when developing their recommendation for a TAC/TAL (and associated commercial quotas and recreational harvest limits), as the FMP does not presently allow for recreational and commercial management uncertainty to be considered independently.
- 4) No change to current possession limits. (Winter I: 30,000 lb/1,000 lb at 80% quota; Winter II: 2,000 lbs/1,000 lbs at 80% quota, unless trip limits increased by Winter I rollovers)
- 5) No change to current minimum fish size and net mesh requirements. (9 inch-TL; 5 inch mesh at trigger)
- 6) No change to current GRAs.
- 7) No change to escape vent requirements in scup pots.
- 8) Up to 3% of the TAL be made available to the Research Set Aside Program.